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US005551445A

United States Patent [19]
Nashner

[11] **Patent Number:** **5,551,445**
[45] **Date of Patent:** **Sep. 3, 1996**

[54] **APPARATUS AND METHOD FOR
MOVEMENT COORDINATION ANALYSIS**

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Oreg.

[73] Assignee: **NeuroCom International, Inc.**,
Clackamas, Oreg.

[21] Appl. No.: **147,613**

[22] Filed: **Nov. 5, 1993**

Related U.S. Application Data

[62] Division of Ser. No. 749,045, Aug. 22, 1991, Pat. No. 5,269,318, which is a division of Ser. No. 7,294, Jan. 27, 1987, Pat. No. 5,052,406, which is a continuation-in-part of Ser. No. 873,125, Jun. 11, 1986, Pat. No. 4,738,269, which is a continuation of Ser. No. 408,184, Aug. 16, 1982.

[51] Int. Cl.⁶ **A61B 5/10**

[52] U.S. Cl. **128/782; 128/774; 128/733**

[58] Field of Search **128/782, 774,
128/733; 434/258, 55**

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,670,729	3/1954	Grant	128/782
3,859,736	1/1975	Hill et al.	434/55
3,890,722	6/1975	Nunez	434/55
3,906,931	9/1975	Tereklov	128/782
4,122,840	10/1978	Tsuchiya	128/782
4,164,080	8/1979	Kosydar et al.	434/55
4,549,555	10/1985	Fraser et al.	128/782
4,738,269	4/1988	Nashner	128/782

FOREIGN PATENT DOCUMENTS

0121025	9/1979	Japan	128/733
695656	11/1979	U.S.S.R.	128/782
712075	1/1980	U.S.S.R.	128/733
820803	4/1981	U.S.S.R.	128/782
904663	2/1982	U.S.S.R.	128/782
WO90/06082	6/1990	WIPO	128/782

OTHER PUBLICATIONS

"A New Instrument For Recording of the Evoked Compound Electro Myogram", Lee et al., Anesthesia and Analgesia, Current Researches, Apr. 1977.

"Electro Myogram", Electronics Today International, Mar. 1980.

Cardo et al., "Properties of Postural Adjustments Associated with Rapid Arm Movements", J. Neurophysiology, vol. 47, No. 2, Feb. 1982, pp. 287-302.

Dietz et al. "Spinal Coordination of Bilateral Leg Muscle Activity During Balancing", Exp. Brain Res. vol. 47, 1982, pp. 172-176.

Horstmann et al., "Spezialaufband für Stand- und Ganguntersuchungen in Forschung und Klinik", Biomedizinische Technik, vol. 32, No. 10, Oct. 1987, Berlin, Germany, pp. 250-254.

Löfstedt, L., "An Apparatus for Generating Controlled Ramp Movements During Studies of Muscle Spindle Afferent Activity and Muscle Tone in Man", IEEE Transactions on Biomedical Engineering, vol. BME-25, No. 4, Jul. 1978, IEEE, New York, pp. 374-377.

(List continued on next page.)

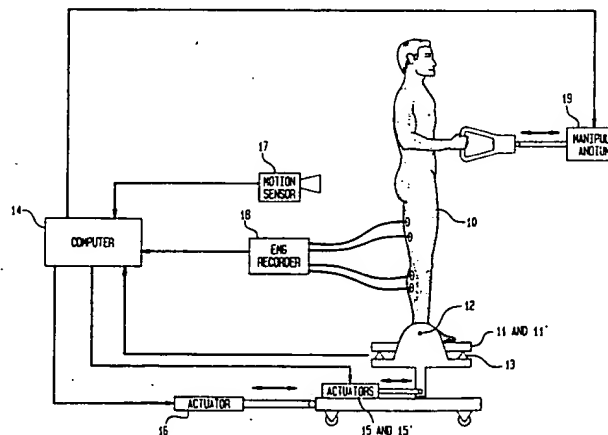
Primary Examiner—Sam Rimell

Attorney, Agent, or Firm—Bromberg & Sunstein

[57] **ABSTRACT**

Methods and devices are provided for evaluating among the limbs of a subject the distribution of impairments of the subject's ability to coordinate the muscular contractions to execute effective postural movements. The subject may be placed on two independently movable support surfaces, either of which may be fixed or sway-referenced. The subject's ability to maintain his or her equilibrium position is then monitored. In another embodiment, the subject is perturbed from a position of equilibrium. The perturbation may be caused by a displacement of the support surfaces, or by having the subject grasp a handle, which may be moved, or against which the subject may push or pull. The latency and strength of the responses of the subject's limbs are measured and compared to each other and to a normal population.

9 Claims, 11 Drawing Sheets



NOTICE

If the application for this patent was filed on or after December 12, 1980, maintenance fees are due three years and six months, seven years and six months, and eleven years and six months after the date of this grant, or within a grace period of six months thereafter upon payment of a surcharge as provided by law. The amount, number and timing of the maintenance fees required may be changed by law or regulation. Unless payment of the applicable maintenance fee is received in the Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period.



The United States of America



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Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.

If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

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